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From: Ham-Equip Mailing List and Newsgroup <ham-equip@ucsd.edu>
Errors-To: Ham-Equip-Errors@UCSD.Edu
Reply-To: Ham-Equip@UCSD.Edu
Precedence: List
Subject: Ham-Equip Digest V94 #406
To: Ham-Equip

Ham-Equip Digest Mon, 7 Nov 94 Volume 94 : Issue 406

Today's Topics:

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Wanted: EPROM 27513
WANTED: ICOM R9000
Wanted: Kenwood R5000

Send Replies or notes for publication to: <Ham-Equip@UCSD.Edu>
Send subscription requests to: <Ham-Equip-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Equip Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-equip".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 6 Nov 1994 22:47:29 -0500
From: skeeterbdg@aol.com (SkeeterBDG)
Subject: 300 Watt AM transmitter \$6000/offer

Here is the more technical information on the Omni-300 AM Broadcast Transmitter. This is a long message, but contains pretty much everything you need... ...if you need more, let me know...

This transmitter was built and sold in June of 1992 by Omnitronix of PA. The transmitter was financed but ended up being repossessed in early 1994. It is in perfect condition and is ready to go! We are asking for \$6000 or best offer--we have to sell it.

Electrical Description:

All Omnitronix transmitters are 100% solid state using extremely efficient pulse duration modulation (PDM) techniques. The nominal frequency range of the transmitter is 535 Khz to 1705 Khz. Front panel status indicators and meters facilitate diagnostics and operation. All components are mounted on plug-in modules accessible from the front for ease of maintenance thus, minimizing downtime. The high reliability, greater ruggedness and excellent AC to RF conversion efficiency translates into a very short payback period. The transmitter consists of four major sub-assemblies all in one rack mountable case. They are the Control circuitry, the Power Amplifier section, the Antenna Interface Unit, and the Power Supply circuitry.

The Control Motherboard connects the Stereo Interface PCB, the PDM Exciter PCB, the Audio Processor PCB, the VSWR Protection PCB and the Control PCB.

All system monitoring is accomplished with front panel analog meters and LED's.

The 300 Watt Power Amplifier Modules plug into a motherboard in the Power Amplifier Panels. Cooling is accomplished by drawing air in from the rear of the transmitter and exhausting it via the front panel grills. The Antenna Interface Unit contains the Harmonic Filter, High Power Combiners, and the Directional Coupler. A hermetically sealed spark gap used to protect against antenna transient voltages. VSWR monitoring is accomplished using the dual directional coupler. Additional, lightning protection is afforded by the topology of the harmonic bandpass filter. The Power Supply Panel encompasses the isolation transformers, low and high voltage rectifiers, MOV's for power line surges, the power supply filter capacitors, fuses and circuit breakers, the Power Supply PCB and the power contactors.

Mechanical Description:

The transmitter is enclosed in a standard 19 inch relay rack. The transmitter is manufactured in modular 19 inch panels that are easily removable from the rack. No components are mounted to the cabinet.

Technical Specifications:

Power output: 300 watts

Emission type: A3

Frequency Range: 535 KHz to 1710 KHz

Output impedance: 50 ohms, unbalanced, type N connector

Brett

Date: 6 Nov 1994 23:54:42 -0500
From: tomsunman@aol.com (TOM SUNMAN)
Subject: Connecting HTX-202 to a TNC

Does anyone make the appropriate cables for connecting a HTX-202 to a TNC? Or will I have to make them? I'm new to amateur radio and packet and would like to get into packet. Thanks!

Tom

Date: Sun, 06 Nov 94 07:21:07 MST
From: david@stat.com (David Dodell)
Subject: Cooling HeatSink on TS50

I use a TS-50 almost exclusively on pactor ... this puts a heavy duty cycle on the radio, with the heat sink usually getting quite warm.

The internal fan seems to have problems keeping up with this, so I'm thinking about using an external fan to help keep up the load.

Would it be better for the fan to blow air across the heat sink to cool it, or rather for the fan to draw air across the heat sink, or does it not make any difference?

David wb7tpy

Editor, HICNet Medical Newsletter
Internet: david@stat.com FAX: +1 (602) 451-1165
Bitnet : ATW1H@ASUACAD

Date: 7 Nov 1994 00:43:12 -0500
From: willco788@aol.com (WILLCO788)
Subject: Does ICOM IC-1271A (1.2 GHz) lose RAM?

In article <dgfCy5J77.G3L@netcom.com>, dgf@netcom.com (David Feldman) writes:

Some of the ICOM VHF/UHF base multimodes have the fine feature of losing their firmware if you let the CMOS battery discharge completely.

I believe the IC-271A does this. Does the IC-1271 share this fine quality?

It sure does! I am working on a replacement memory for the IC-271, IC-471 and the IC-1271. The replacement memory won't have any battery and data will be stored in an NVRAM.

Jack Albert WA9FVP

WILLCO Electronics.

Date: 5 Nov 1994 04:28:27 GMT
From: leo@tiac.net (Lawrence Ober)
Subject: EM Sargent Mod. 21 Rcvr (antique) schematic?

I am posting this unquiry for a friend. He is looking for the schematic for an E.M. Sargent (Oakland, CA) Model 21 Receiver from 1936. Any help pointing in the right direction will be appreciated.

73 Larry Ober KC1VS

Date: 6 Nov 1994 21:22:58 -0600
From: davros@news.eden.com (Buddy Brannan)
Subject: Getting Permission to Operate in Germany?

Howdy.

I'm considering a study abroad this summer in Wuerzburg. I would like to take my handheld with me, and possibly find a club station or something to do some hf operation as well. How easy(or difficult) is it to get permission to operate in Germany (reciprocal license) for 10 weeks between May and July, should I get accepted to the study abroad program I'm thinking of? What is the procedure to get this permission? Any info that can be given about this stuff is greatly appreciated.

Thanks much...

--
Buddy Brannan, KB5ELV | Mary had a little lamb.
(512)441-3246 (Home) | Her father shot it dead.
Internet: davros@eden.com | Now Mary takes her lamb to school
davros@ccwf.cc.utexas.edu | Between two bits of bread.

Date: Mon, 7 Nov 1994 06:54:32 GMT
From: mrmoose@netcom.com (Johnny B.)
Subject: HT that stores many pages

I was reading the manual for the Yaesu FT-11R, and I noticed that it can store 10 (as I recall) six-character page messages. Are there other 2m-only HT's that can store multiple pages with some characters so as to convey a message? I want to be able to receive page messages one after the other w/out overwriting previous pages or locking out subsequent ones.

thanks

jb

Date: 6 Nov 1994 22:42:30 -0500
From: tomsunman@aol.com (TOM SUNMAN)
Subject: HTX-202 packet help needed please

Does anyone make the appropriate cables for connecting a HTX-202 to a TNC? Or will I have to make them? I'm new to amateur radio and packet and would like to get into packet. Thanks!

Tom

Date: 7 Nov 1994 01:06:54 -0500
From: andrewj514@aol.com (AndrewJ514)
Subject: ICOM 4SAT forsale

In article <386ljs\$cmi@phantom.oit.gatech.edu>,
nickp@phantom.oit.gatech.edu (Nick Pope) writes:

WHAT IS THE RECEIVE RANGE ON THE 4SAT?

ANDY, N6XKN

Date: 6 Nov 1994 21:48:43 -0500
From: andrewj514@aol.com (AndrewJ514)
Subject: ICOM IC-P4AT TTP lettering, premature wearing off

In article <389ame\$5d6@athos.cc.bellcore.com>, mcg@elan.cc.bellcore.com

(25838-germain) writes:

THAT IS A FAMOUS ICOM FAULT; I HAVE A 2SAT AND A 24AT HT AND THE INK HAS COME OFF THE KEYPAD. MY ADVICE - USE ONE OF THEIR CARRYING CASES OR COAT THE KEYPAD WITH CLEAR COAT. THE KEYPAD COST ABOUT \$4 BUT IS HARD TO INSTALL IF YOU WANT TO REPLACE IT.

ANDY N6XKN

Date: 7 Nov 1994 00:15:30 -0500
From: willco788@aol.com (WILLCO788)
Subject: Icom R-71 Modification to 37 MHz

Modification of the R-71A to 37 MHz
TF Marcotte, N50FF

This article will cover the use of the Willco Electronics Company's ICM-1024 No-Fail memory board for Icom products as a means of achieving a 37 MHz upper frequency limit for the Icom R-71A receiver. This modification is done without tampering with the RF circuits of the radio.

Caveat: Don't attempt this modification if you are uncomfortable with soldering small electronic devices. With that said, lets continue.

Some Icom products, the R-71A and the IC-751 to name two, have a volatile random access memory (RAM) board which stores the radio's operating parameters (i.e. band limits) as well as 32 user programmed memories. The RAM is kept alive by a small lithium battery. In most cases, the battery should last a long time, ten years or more. Battery health may be assessed at any time by comparing its present voltage to an approximate 2.7 volt warning level. If by some chance this battery should fail before you've had the opportunity to solder in a new one, then the board (not the whole radio) must must be returned to Icom for replacement of the battery, and for reprogramming of the RAM chip.

Willco Electronics markets a product called the ICM-1024 No-Fail memory board. This product has two key features:

- 1). The board offers the user 32 x 32, or 1024 memories.
- 2). The board has the radio's operating parameters stored on a read-only memory (ROM) chip. In other words, there is no danger of the radio becoming inoperative due to battery failure.

The Willco board does in fact have a RAM chip and battery like the Icom, but this chip holds only the memories, not the operating parameters. If the Willco battery fails, then one would only lose the memories (albeit 1024 of them!).

It should be stressed that careful replacement of the battery on either of the boards when the voltage drops to 2.7 volts will prevent a memory loss of any kind.

Installation of the Willco board is relatively straightforward, and well documented in the instructions. Mechanically, the board (not a kit) presses right down into the original Icom connectors. To enable the 1024 memory capability, one must make one logic unit connection and eight connections to two chips in the radio's matrix unit. The instructions don't mention that you can get the no-fail capability and 32 memory function by not wiring the board in at all, just press it down to the original board's connectors. This may be a good alternative to solder-shy users.

Being that the Willco board holds the operating parameters, the company took the opportunity to extend the primary default upper band limit to 31.0 MHz (the lower limit is moved as well, from 100 KHz to 10 KHz). The default limit was not programmed higher than this because the Icom R-71A (and the IC-751 as well) shut down at that frequency. That is, the Icom control chip that tells the radio to turn on the proper VCO (one of four) and bandpass filter (one of five) for the top band doesn't address frequencies higher than 31.0 MHz with its factory wiring. When the frequency exceeds 31.0 MHz, all VCO's and bandpass filters are switched off.

The Willco boards of post-December 1993 manufacture have an alternate upper frequency limit of 55 MHz programmed into a separate R-71A program location. This location can be accessed by jumpers. The jumper configurations for the various radios that the Willco board supports are:

JP01 JP02 JP04 JP08 Icom Radio Note

0	0 0 0	R-71A	31 MHz upper limit
1	0 0 1	R-71A	55 MHz upper limit
1	0 0 0	IC-745A	
0	1 0 0	IC-751A	
1	1 0 0	IC-271A	
0	0 1 0	IC-471A	
1	0 1 0	IC-251A	

With the jumpers installed properly, the radio will now program up to 55 MHz, but will only operate up to 31 MHz.

There is a solution to this problem, however. The R-71A's control chip has an unused pin that turns on at frequencies greater than 31 MHz. The solution is to wire this pin into the top VCO and bandpass filter circuit to keep them turned on above 31 MHz.

This is done by first cutting the trace from the control chip pin's original path for the top band, and wiring in two diodes. One diode connects the original path for the old top band, the other utilizes the formerly unused pin on the control chip to keep the top VCO and bandpass filter turned on above 31 MHz.

These are the steps necessary to perform this modification:

- 1). remove the top and bottom covers of the radio. Make sure that your radio power is off, and that the radio frame and soldering iron are grounded.
- 2). remove the option unit installation plate from the bottom section of the radio and gently fold it frontwards. This is the board that holds the remote control board, the speech synthesizer, and the computer interface unit. Your radio may have some or none of these options installed.
- 3). The large exposed board will be the logic unit. On this board, locate IC-14. This is the IC that controls the bandpass filters and VCO's for the various bands. Pin 17 (refer to your schematic) of this IC goes high between 22 MHz and 31 MHz. Remove the screws from the logic board, and gently turn it over.
- 4). On the underside of the logic board, locate the circuit trace from IC-14, pin 17 (goes to C28 and R41) and sever this trace near the chip.
- 5). Install a small diode from pin 17 to the near side of R41 (this duplicates the original path of the trace you just cut) with the polarity such that current can flow from the chip to the resistor. I used 1N914 diodes, Radio Shack number 276-1122.
- 6). Install a second diode with like polarity as in step 5 from pin 18 (pin 18 is not shown on the schematic, but you can locate it as the unused pin next to 17) to the same point as in step 5, the near side of R41. This new circuit path will allow the chip to switch on the top VCO and bandpass filter above 31 MHz.

Now, with this accomplished, you should verify that the radio receives at 31.100 MHz. This will confirm that the wiring change was done properly. You will soon find, however, that the radio will only

receive up to about 32 MHz now, because the VCO will go out of lock at approximately this frequency.

Icom originally employed this top VCO for an 8 MHz range, between 22 MHz and 30 MHz. The VCO actually has a lock range of about 15 MHz, however. This generous margin may be exploited by adjusting C107 in the PLL unit of the radio (the trimmer of four closest to the front panel in this unit). Carefully adjust this trimmer until a maximum locked frequency limit is reached. This should be about 37 MHz or higher. All the while, verify that you still have VCO lock at 22 MHz. In my radio, a top frequency of 37.95 MHz was reached.

That does it. The radio will now receive up to 37 MHz, and you are ready for some VHF-Low banding.

Since no modifications were done to RF circuitry, I was originally concerned about the performance of the radio above the original design limits. More ambitious readers may be able to achieve higher limits and better performance by tackling the RF and VCO circuits, but I elected not to.

Sensitivity figures for the modified radio are shown below, in terms of a dB reduction relative to an S9 signal at 24 MHz (optimum).

Frequency MHz	dB sensitivity reduction relative to 24.0 MHz
22	-2.5
23	-2
24	0
25	-0.9
26	-2.3
27	-3.4
28	-3.8
29	-3.6
30	-2.9
31	-2.6
32	-4.5
33	-7.6
34	-11.6
35	-15.8
36	-20.5
37	-25.8
37.95	-30.3

As you can see from the figures, the radio performs relatively well above 30 MHz, up to about 33 MHz, with no RF modifications.

Another advantage of the Willco board is its sheer memory capacity. I have used several of its 32 banks of 32 memories to store all possible commercial and military FM frequencies. This way, in the scan mode, I can monitor openings from all over the country. Foreign languages are not uncommon when the band is really hot.

In conclusion, I have found that modification of the R-71A opens up a whole new way of 10 meter band spotting for me. The radio has a "big sound" on FM that scanners simply don't have.

Willco Electronics can be reached at P.O. Box 788, New Lenox, IL 60451. Phone (815) 723-6564. The board cost \$124.95 plus \$3.00 shipping.

Acknowledgement

Special thanks to Mark Salyzn, VE6MGS, for technical support in performing similar modifications to the Icom IC-751.

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-- James Dugal, N5KNX Internet: jpd@usl.edu
Associate Director Ham packet: n5knx @k5arh (land), U0-22 (sat.)
Computing Center US Mail: PO Box 42770 Lafayette, LA 70504

Posted by Jack Albert WA9FVP

Date: 7 Nov 1994 01:04:22 -0500
From: willco788@aol.com (WILLCO788)
Subject: Icom R70 problem

In article <38m9lu\$en\$1@mhade.production.compuserve.com>, Scott NQ3I <71674.16@CompuServe.COM> writes:

I have an old R70 that recently developed a strong birdie on 9.465 MHz that renders it useless around the 31 meter band. Anybody had a similar problem who can recommend fixes? Thanks all advice.

There may be a bad connection in the shielded cables from the PLL board to the Main PC board. There can also be a bad ground on the display board. If the screws that mount top and bottom covers are loose, interference from the uP board on the bottom of the radio can also cause birdies.

Jack Albert WA9FVP

WILLCO Electronics.

Date: 7 Nov 1994 00:36:25 -0500
From: pavelow3@aol.com (PaveLow3)
Subject: Kenwood TS830S for sale

Kenwood TS830S in mint condition with CW filter and Desk Microphone. Also with External VFO-230 and heathkit HM-102 power/swr meter. \$750 OBO for all. Please email to:

pavelow3@aol.com

Date: 6 Nov 1994 18:29:12 -0500
From: ni2p@panix.com (Leon Kanopka)
Subject: Mirage amplifier schematic

I am looking for a schematic diagram of a Mirage B3016R 10W in - 125W out repeater amplifier. I believe that this is the same schematic as the regular Mirage 3016 VHF amplifier. If anyone has this and can make me a copy, please email me and I will give you an address that you can mail it to. Thanks alot.

73

--
Cheers, Leon ni2p@panix.com
"Guard with jealous attention the public liberty. Suspect every one who approaches that jewel. Unfortunately, nothing will preserve it but down right force. Whenever you give up that force, you are ruined." Patrick Henry

Date: 06 Nov 94 22:25:00 -0500
From: David.Edger@f239.n109.z1.fidonet.org (David Edger)
Subject: Need Ic2at Nicads

Periphex will sell you a replacement BP-8 for about \$40. That is well worth it to keep a classic rig like the 2AT going. I wish I still had mine!

73 Dave AA5NU

Fidonet: David Edger 1:109/239
Internet: David.Edger@f239.n109.z1.fidonet.org

Date: 1 Nov 1994 06:58:36 GMT
From: Chris Arai <arai@rahul.net>
Subject: Swap Meet Dates ????

I'm looking for dates on swap meets in the San Francisco area.

Can anyone help out?

Thanks

Chris

--

Chris Arai <arai@rahul.net>

Date: Mon, 7 Nov 1994 03:29:03 GMT
From: barnaby@world.std.com (Richard L Barnaby)
Subject: Wanted: EPROM 27513

Our club repeater is down, and we need an EPROM 27513,
no, not 27512, but 27513, the discontinued one.

If you have a source we are interested in buying (at least one)
and possibly up to 12, some for spares for us, and some for a
neighboring club. Please email to:

barnaby@world.std.com

Thanks:

Richard Barnaby (AA1IB)

Central Vermont Amateur Radio Club

800-864-5591 for a message if no i-net access. Thanx

Date: 6 Nov 1994 14:33:34 GMT
From: root@myhost.subdomain.domain (Jeff Bralley)
Subject: WANTED: ICOM R9000

WANTED: ICOM R9000 receiver and support gear.

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Jeff J. Bralley : Systems Software Engineer/Consultant/Mercenary/President
Galactic Software Services, Inc.; 9201 N. 29th Ave., Suite 63-356

Phoenix,AZ,USA 85051-3468; 602-863-3299 Voice & Fax; bralley@primenet.com

Date: 6 Nov 1994 22:17:23 -0600
From: CFIELD41@MAINE.MAINE.EDU
Subject: Wanted: Kenwood R5000

I'm looking for a Kenwood R5000 receiver. I live in Lewiston, ME. If anybody is selling one or knows where I could go around Maine to find one, please email me. I am new to monitoring so I don't know where to look. Thanks in advance
-Chris Field

End of Ham-Equip Digest V94 #406
